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SECURITY THREATS ON CLOUD COMPUTING VULNERABILITIES

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ABSTRACT

Clouds provide a powerful computing platform that enables individuals and organizations to perform variety levels of tasks such as: use of online storage space, adoption of business applications, development of customized computer software, and creation of a "realistic" network environment. In previous years, the number of people using cloud services has dramatically increased and lots of data has been stored in cloud computing environments. In the meantime, data breaches to cloud services are also increasing every year due to hackers who are always trying to exploit the security vulnerabilities of the architecture of cloud. In this paper, three cloud service models were compared; cloud security risks and threats were investigated based on the nature of the cloud service models. Real world cloud attacks were included to demonstrate the techniques that hackers used against cloud computing systems. In addition, counter measures to cloud security breaches are presented.

KEYWORDS

Cloud computing, cloud security threats and countermeasures, cloud service models

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DATA WAREHOUSE AND BIG DATA INTEGRATION

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ABSTRACT

Big Data triggered furthered an influx of research and prospective on concepts and processes pertaining previously to the Data Warehouse field. Some conclude that Data Warehouse as such will disappear; others present Big Data as the natural Data Warehouse evolution (perhaps without identifying a clear division between the two); and finally, some others pose a future of convergence, partially exploring the possible integration of both. In this paper, we revise the underlying technological features of Big Data and Data Warehouse, highlighting their differences and areas of convergence. Even when some differences exist, both technologies could (and should) be integrated because they both aim at the same purpose: data exploration and decision making support. We explore some convergence strategies, based on the common elements in both technologies. We present a revision of the state-of-the-art in integration proposals from the point of view of the purpose, methodology, architecture and underlying technology, highlighting the common elements that support both technologies that may serve as a starting point for full integration and we propose a proposal of integration between the two technologies.

KEYWORDS

Big Data, Data Warehouse, Integration, Hadoop, NoSql, MapReduce, 7V's, 3C's, M&G

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FUTURE AND CHALLENGES OF INTERNET OF THINGS

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ABSTRACT

The world is moving forward at a fast pace, and the credit goes to ever growing technology. One such concept is IOT (Internet of things) with which automation is no longer a virtual reality. IOT connects various non-living objects through the internet and enables them to share information with their community network to automate processes for humans and makes their lives easier. The paper presents the future challenges of IoT , such as the technical (connectivity , compatibility and longevity , standards , intelligent analysis and actions , security), business (investment , modest revenue model etc.), societal (changing demands , new devices, expense, customer confidence etc.) and legal challenges (laws, regulations, procedures, policies etc.). A section also discusses the various myths that might hamper the progress of IOT, security of data being the most critical factor of all. An optimistic approach to people in adopting the unfolding changes brought by IOT will also help in its growth

KEYWORDS

IoT, Internet of Things, Security, Sensors

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CLUSTERING ALGORITHM FOR A HEALTHCARE DATASET USING SILHOUETTE SCORE VALUE

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ABSTRACT

The huge amount of healthcare data, coupled with the need for data analysis tools has made data mining interesting research areas. Data mining tools and techniques help to discover and understand hidden patterns in a dataset which may not be possible by mainly visualization of the data. Selecting appropriate clustering method and optimal number of clusters in healthcare data can be confusing and difficult most times. Presently, a large number of clustering algorithms are available for clustering healthcare data, but it is very difficult for people with little knowledge of data mining to choose suitable clustering algorithms. This paper aims to analyze clustering techniques using healthcare dataset, in order to determine suitable algorithms which can bring the optimized group clusters. Performances of two clustering algorithms (Kmeans and DBSCAN) were compared using Silhouette score values. Firstly, we analyzed K-means algorithm using different number of clusters (K) and different distance metrics. Secondly, we analyzed DBSCAN algorithm using different minimum number of points required to form a cluster (minPts) and different distance metrics. The experimental result indicates that both K-means and DBSCAN algorithms have strong intra-cluster cohesion and inter-cluster separation. Based on the analysis, K-means algorithm performed better compare to DBSCAN algorithm in terms of clustering accuracy and execution time.

KEYWORDS

Dataset, Clustering, Healthcare data, Silhouette score value, K-means, DBSCAN

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DATA MINING MODEL PERFORMANCE OF SALES PREDICTIVE ALGORITHMS BASED ON RAPIDMINER WORKFLOWS

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ABSTRACT

By applying RapidMiner workflows has been processed a dataset originated from different data files, and containing information about the sales over three years of a large chain of retail stores. Subsequently, has been constructed a Deep Learning model performing a predictive algorithm suitable for sales forecasting. This model is based on artificial neural network –ANN- algorithm able to learn the model starting from sales historical data and by pre-processing the data. The best built model uses a multilayer neural network together with an "optimized operator" able to find automatically the best parameter setting of the implemented algorithm. In order to prove the best performing predictive model, other machine learning algorithms have been tested. The performance comparison has been performed between Support Vector Machine –SVM-, k-Nearest Neighbor k-NN-,Gradient Boosted Trees, Decision Trees, and Deep Learning algorithms. The comparison of the degree of correlation between real and predicted values, the average absolute error and the relative average error proved that ANN exhibited the best performance. The Gradient Boosted Trees approach represents an alternative approach having the second best performance. The case of study has been developed within the framework of an industry project oriented on the integration of high performance data mining models able to predict sales using– ERP- and customer relationship management –CRM- tools.

KEYWORDS

RapidMiner, Neural Network, Deep Learning, Gradient Boosted Trees, Data Mining Performance, Sales Prediction.

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AN EXPLORATION OF THE FACTORS AFFECTING USERS' SATISFACTION WITH MOBILE PAYMENTS

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ABSTRACT

Mobile payment allows consumers to make more flexible payments through convenient mobile devices. While mobile payment is easy and time save, the operation and security of mobile payment must ensure that the payment is fast, convenient, reliable and safety in order to increase the users' satisfaction. Therefore, this study based on technology acceptance model to explore the impact of external variables through perceived usefulness and perceived ease of use on users' satisfaction. The data analysis methods used in this study are descriptive statistical analysis, reliability and validity analysis, Pearson correlation analysis and regression analysis to verify the hypotheses. The results show that all hypotheses are supported. However, mobile payment is still subject to many restrictions on development and there are limited related researches. The results of this study provided insight into the factors that affect the users' satisfaction for mobile payment. Related services development of mobile payment and future research suggestions are also offered.

KEYWORDS

Mobile Payment, Technology Acceptance Model, Users' satisfaction

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BIG DATA IN CLOUD COMPUTING REVIEW AND OPPORTUNITIES

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ABSTRACT

Big Data is used in decision making process to gain useful insights hidden in the data for business and engineering. At the same time it presents challenges in processing, cloud computing has helped in advancement of big data by providing computational, networking and storage capacity. This paper presents the review, opportunities and challenges of transforming big data using cloud computing resources.

KEYWORDS

Big data; cloud computing; analytics; database; data warehouse

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MONITORING STUDENT ATTENDANCE USING A SMART SYSTEM AT TAIF UNIVERSITY

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ABSTRACT

The university system in the Kingdom of Saudi Arabia is concerned with student attendance for lectures, and it is the responsibility of lecturers to monitor student attendance for each lecture. By the end of the semester, students get an attendance register indicating which lectures the student has attended and it reports the calculated percentage for each student's attendance in each course. Universities have regulated the mechanisms and the acceptable percentages of student absence. The process for a lecturer to manually check student attendance consumes a lot of time and effort, either during the lecture or when in the process of emptying absenteeism and inserting it into the university's electronic system. Therefore, Saudi universities compete to find modern methods of checking student attendance that will avoid the disadvantages of manually taking attendance. For this reason, they have produced electronic attendance systems, for example, using a student's fingerprint, an eye recognition system, or a mobile phone system to read a QR code designed for the same purpose. All of these systems have the disadvantage that they consume a lot of time, as all students have to line up at the fingerprint reader or the eye detector for identification. Therefore, the problem of the consumption of lecture time is still present, even with these modern systems. Therefore, the aim of this research is to propose a smart mobile application that is able to check the attendance of students without having to consume lecture time or require any effort from the lecturer. The system automatically recognizes the attendance of students through their university ID cards. Each lecturer would use his/ her own mobile phone to use the proposed system to check the attendance of students instead of using manual method to register the attendance of students and the students' ID cards that are detected by coming within range of the lecturer reader would represent present students, and missing student ID cards represent absent students

KEYWORDS

Context Awareness, RFID, Monitoring Student Attendance.

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DIAGONAL BASED FEATURE EXTRACTION FOR HANDWRITTEN ALPHABETS RECOGNITION SYSTEM USING NEURAL NETWORK

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ABSTRACT

An off-line handwritten alphabetical character recognition system using multilayer feed forward neural network is described in the paper. A new method, called, diagonal based feature extraction is introduced for extracting the features of the handwritten alphabets. Fifty data sets, each containing 26 alphabets written by various people, are used for training the neural network and 570 different handwritten alphabetical characters are used for testing. The proposed recognition system performs quite well yielding higher levels of recognition accuracy compared to the systems employing the conventional horizontal and vertical methods of feature extraction. This system will be suitable for converting handwritten documents into structural text form and recognizing handwrittennames

KEYWORDS

Handwritten character recognition, Image processing, Feature extraction, feed forward neural networks.

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INTRUSION DETECTION SYSTEM CLASSIFICATION USING DIFFERENT MACHINE LEARNING ALGORITHMS ON KDD-99 AND NSL-KDD DATASETS - A REVIEW PAPER

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ABSTRACT

Intrusion Detection System (IDS) has been an effective way to achieve higher security in detecting malicious activities for the past couple of years. Anomaly detection is an intrusion detection system. Current anomaly detection is often associated with high false alarm rates and only moderate accuracy and detection rates because it's unable to detect all types of attacks correctly. An experiment is carried out to evaluate the performance of the different machine learning algorithms using KDD-99 Cup and NSL-KDD datasets. Results show which approach has performed better in term of accuracy, detection rate with reasonable false alarm rate.

KEYWORDS

Intrusion Detection System, KDD-99 cup, NSL-KDD, Machine learning algorithms

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